

22 Multiple choice questions

A+
100%

- the apparent change in frequency when there is a relative motion between a source of sound and the observer
 - half-life
 - CORRECT: Doppler effect**
 - fibre optics
 - optical fibres
- the frequency of precession of a proton or electron in a uniform magnetic field
 - gamma rays
 - CORRECT: Larmour frequency**
 - acoustic impedance
 - Doppler effect
- made by passing electric current through a conductor, which acts as a magnet
 - CORRECT: electromagnets**
 - endoscopes
 - gamma rays
 - b-scan
- a non-invasive technique used to produce images of tissues inside the body using radio-frequency energy and strong magnetic fields
 - electromagnets
 - nuclear imaging
 - magnetic moment
 - CORRECT: magnetic resonance imaging (MRI)**
- an ultrasound scan in which a single transducer scans along a line in the body and the resulting echoes are plotted as a function of time
 - hertz
 - CORRECT: a-scan**
 - imaging
 - b-scan

6. occur when current is moving in a circle; a current loop acts like a bar magnet
 - a. endoscopes
 - b. coherent bundles
 - c. **CORRECT: current loops**
 - d. endoscopy

7. the use of ultrasound and the Doppler effect to diagnose heart (cardiac) problems
 - a. **CORRECT: echocardiography**
 - b. biopsy
 - c. endoscopes
 - d. endoscopy

8. the process of creating an image of the interior of the human body by using ultrasound, x-rays, radio waves or electromagnetic waves or gamma rays
 - a. hertz
 - b. a-scan
 - c. b-scan
 - d. **CORRECT: imaging**

9. the use of radioisotopes to produce an image of the internal organs
 - a. imaging
 - b. fibre optics
 - c. electromagnets
 - d. **CORRECT: nuclear imaging**

10. glass fibres with an outer layer that has a lower refractive index than the inner layer; used to transmit light over distances and around corners
 - a. **CORRECT: optical fibres**
 - b. fibre optics
 - c. imaging
 - d. gamma rays

11. the medical examination of the interior of the body by inserting an endoscope through an opening in the body
 - a. **CORRECT: endoscopy**
 - b. endoscopes
 - c. biopsy
 - d. a-scan

12. devices that use optic fibres to look inside the body; endoscopes assist in observing internal organs and in obtaining tissue samples for biopsy
 - a. endoscopy
 - b. b-scan
 - c. **CORRECT: endoscopes**
 - d. a-scan

13. a measure of the turning effect of a spinning charge in a magnetic field; it determines how difficult it is for the charge to align its axis of rotation in the direction of an external magnetic field
 - a. acoustic impedance
 - b. **CORRECT: magnetic moment**
 - c. imaging
 - d. endoscopes

14. a unit of frequency equal to one cycle per second
 - a. biopsy
 - b. b-scan
 - c. **CORRECT: hertz**
 - d. a-scan

15. a non-invasive technique that uses x-rays to produce images of various internal parts of the body
 - a. current loops
 - b. echocardiography
 - c. acoustic impedance
 - d. **CORRECT: computerised axial tomography (CAT)**

16. a technology where light travels through fine glass tubes (optic fibres) as a result of total internal reflection
- endoscopes
 - biopsy
 - CORRECT: fibre optics**
 - gamma rays
17. a measure of how easy it is to transmit sound waves through a medium; it is equal to the product of the density of the material and the velocity of sound through it
- CORRECT: acoustic impedance**
 - endoscopes
 - magnetic moment
 - a-scan
18. the time it takes for half the given mass of a radioactive element to change into a new element
- hertz
 - a-scan
 - imaging
 - CORRECT: half-life**
19. an ultrasound scan where a linear array of transducers scans a plane in the body (a slice from front to back)
- CORRECT: b-scan**
 - hertz
 - a-scan
 - biopsy
20. high-energy photons emitted during radioactive decay
- endoscopes
 - a-scan
 - CORRECT: gamma rays**
 - imaging

21. bundles of optical fibres in which the individual fibres are kept in the same relative positions in the bundle at both ends
- a. hertz
 - b. optical fibres
 - c. **CORRECT: coherent bundles**
 - d. current loops
22. the removal of a small amount of tissue for medical examination
- a. b-scan
 - b. **CORRECT: biopsy**
 - c. a-scan
 - d. hertz